

anism two feed-wheels, F G, which are formed with equidistant longitudinal grooves or channels *f g* to receive the cartridges. Over the feed-wheel F, which is arranged upon a shaft, F', below the barrel, I pass the belt or chain E, so that as the said wheel is intermittently rotated it brings the cartridges from the said box or receptacle into position to be thrust successively into the grooves in the feed-wheel G, as hereinafter described. The feed-wheel G is arranged in front of the wheel F on a shaft, G', which is below the barrel B, but above the shaft F'. The position of the wheel G relatively to the barrel B, the breech-block or plunger C, and the wheel F is such that the lowermost groove or channel, *g*, in the wheel G is in line with the uppermost groove, *f*, in the wheel F, and the uppermost groove in the wheel G is in line with the barrel. In combination with and parallel to the breech-block or plunger I provide an auxiliary plunger or pusher, H, carried by a cross bar or arm, C', extending downward from the breech-block or plunger. This pusher is arranged, as shown in Fig. 2, so that when a groove, *f*, in the wheel F coincides with a groove, *g*, in the wheel G the said pusher is in line with the said grooves, and as the breech-block moves forward will force a cartridge from the groove *f* into the groove *g*, thus freeing the said cartridge from the belt or band E. The feed-wheels are then partially rotated, as hereinafter described, and another cartridge is forced from the wheel F into the wheel G, and so on, and the cartridges are successively carried by the rotation of the wheel G into line with the barrel, and in front of the breech-block or plunger C.

To prevent the band E from being pushed forward with a cartridge when the latter is forced from one of the grooves *f*, the wheel F is provided with a circumferential recess, *f'*, which receives the said band, so that it is held against displacement.

The pusher H extends through the rear end of the frame A, and is provided with a knob or handle, *h*, whereby the breech mechanism can be operated by hand.

To insure the accurate alignment of each cartridge with the barrel as it is brought up to the same by the wheel G, I form at the bottom of each groove *g* a slot, *g'*, and I form on the forward end of the breech-block or plunger C a pin or feather, *g''*, adapted to enter and slide in this slot, the end of the said slot at the rear side of the wheel being widened and inclined, as shown in Fig. 6, so that the said feather cannot fail to enter the same as the breech-block or plunger moves forward. Similar means may, if desired be employed to insure accuracy in the working of the wheel F and pusher H.

Each of the said feed-wheels is suitably inclosed in a casing to prevent the slipping of the cartridge from the said grooves or channels. The casing F², which surrounds the wheel F, is provided with two openings, F³ F⁴.

The opening F⁴, through which the cartridges pass to the feed-wheel, is bell-shaped, as shown in Figs. 2 and 3, for the purpose of guiding the cartridges. After the cartridges have been pushed from the web E into the grooves of the wheel G the empty web passes through the opening F³. The casing G², surrounding the wheel G, has only one opening, G³, through which the empty cartridge-shells pass as the grooves or divisions of the wheel come successively opposite the said opening.

The manner in which the breech-block or plunger C in its longitudinal to-and-fro movement is caused to impart the required intermittent rotary motion to the feed-wheels is as follows—that is to say, the said wheels F G have ratchet-pinions K L formed or fixed thereon. In combination with these ratchet-pinions I arrange pawls K' L', carried by a vertical bar, *k*, arranged to slide in bearings or guides fixed on the side of the frame A. A lever, M, is pivoted at *m*, and has its end *k''* curved, as shown. The other end, *k'''*, engages with the upper end of the vertical bar *k*. A roller, *k''''*, on the breech-block or plunger C acts on the curved end *k''* of the lever M at each movement of the said plunger. At the commencement of each forward movement of the plunger C it imparts, through the medium of the lever M, a downward movement to the vertical bar *k*, and in the downward movement the pawls K' L' turn the feed-wheels on their axes so as to move each cartridge a distance equal to the width of one groove. At the end of each backward movement of the plunger C the said roller *k''''* acts upon the curved end *k''* of the lever M, and moves the vertical bar *k* and pawls K' L' upward without operating the feed-wheels. To prevent the accidental backward movement of the said wheels, I provide stop-pawls K² L², to engage with the ratchet-teeth thereon. A spring, N, is arranged to bear on the upper end of the vertical bar *k* to assist or facilitate its downward movement.

As above stated, the breech-block or plunger C carries the cock or hammer *c'*. The said cock or hammer is arranged upon a pivot or fulcrum, *c''*, in the proper position to act on the firing-pin *c*, which pin or a rod connected therewith, extends centrally through the breech-block or plunger C, as shown in Fig. 2.

In combination with the hammer *c'* I provide a device which, during the forward movement of the breech-block, will cock the said hammer, and will release the same so that it will be actuated by the mainspring J at the proper moment to discharge the gun. This device consists of an arm, I, pivoted to the frame A, and arranged in such a position that it projects into the path of the hammer *c'* as the latter moves with the breech-block or plunger. The said arm has at its end a beveled surface, *i*, which, as the breech-block or plunger moves forward, engages with the nose *c''* of the hammer and forces the same back against the pressure of the mainspring J,